SECOND ANNUAL REPORT

OF

DR. GEORGE BLAND,

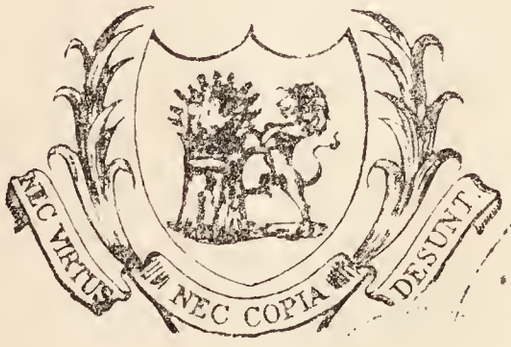
Medical Officer of Health,

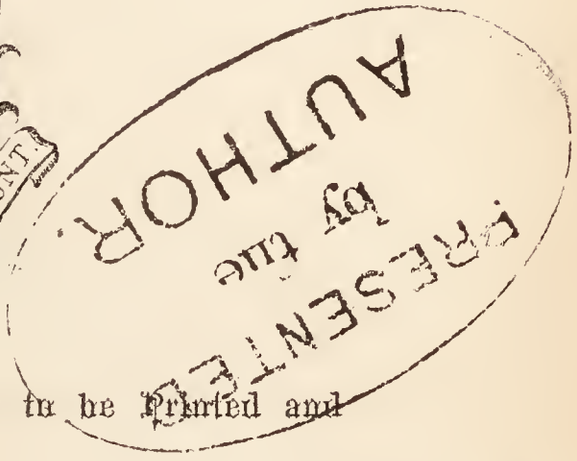
FOR THE

BOROUGH OF MACCLESFIELD,

CONTAINING THE

VITAL STATISTICS FOR THE YEAR 1874.





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ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH,

FOR THE

BOROUGH OF MACCLESFIELD.

YEAR ENDING DECEMBER 31st, 1874.

Mr. Chairman and Gentlemen :—

I have the honour to submit to your notice my Second Annual Report on the health of the Borough of Macclesfield

As in the preceeding report I propose to divide this into two parts ; the first, prefaced by a short account of the Sanitary legislation of the past session, and the Acts of Parliament adopted by the Corporation during the year, will refer to the work of the Nuisance Department ; the second part will be devoted to the vital statistics for 1874.

PART I.

During the year the Corporation formally "adopted" three Acts of Parliament; or in other words the Council determined to put the Provisions of those Acts into force in the Borough.

The Acts were—

1st.—The Bakehouse Regulation Act, which provides for the regulation of the hours of labour and Sanitary requirements of Bakehouses. The term "Bakehouse" being interpreted to mean any place in which is baked bread, or biscuits, or confectionery, from the baking or selling of which a profit is derived. The Acts ordains:

1st.—That no person under the age of 18 years may be employed in any Bakehouse, between the hours of 9 p.m. and 5 a.m. 2nd—That the inside walls and ceiling of every Bakehouse and the passages and staircase leading thereto, must be painted with oil or lime-washed, or partly painted and partly lime-washed. Where painted there must be three coats of paint, and the painting renewed once at least in every seven years, and must be washed with hot water and soap once at least in every six months. Where lime-washed, the lime-washing must be renewed once in every six months. 3rd.—That every Bakehouse must be kept in a cleanly state, and be provided with means for its effectual ventilation, and be free from effluvia arising from any drain, privy, or other nuisance. 4th.—That no place on the same level with a Bakehouse and forming part of the same building shall be used as a sleeping place, except under certain conditions. The Act also empowers the Medical Officer of Health and Inspector of Nuisance to enter any Bakehouse during the hours of working, and imposes penalties, varying from £2 to £20, for the nfringement of these regulations.

2nd.—The Prevention of Smoke Act. This Act requires every fire place or furnace constructed, since the Act came into operation in the Borough, for use in working engines by steam, or in any mill, dyehouse, brewery, bakehouse, gas works, or manufactory (although a steam engine is not used or employed in it,) to be so constructed as to consume the smoke arising from the combustibles used. Every fire place or furnace existing in the district when the Act came into force in it, and which is not so constructed as to consume its own smoke, is required within two years to be so altered as to do so. Certain trades are however exempted, such as the coking of coal, and the burning of bricks. The penalty for using a fire place not constructed so as to consume its own smoke after one month's notice from the local authority to remedy or discontinue its use, is 40s. per day.

3rd.—The Adulteration of Food Act. It is very important that the food of the people, especially of the working classes, should be pure and unadulterated. This Act was passed, as its name implies, for the prevention of adulteration. In practice it has, I believe, been found to treat with undue severity the retail traders, especially as regards such articles as tea, which, it is well-known, is adulterated

before it arrives in England. The legislature is now considering a bill which, if passed, will considerably modify and alter the present Act.

This introduces the subject of new legislative enactments of the session of 1874, calculated to promote the public health.

Among them are—

1st.—The Agricultural Children Act which in the first place renders it illegal for any person occupying not less than one acre of land, to employ any child under the age of eight years in agricultural work, unless he is the parent of the child and the child is employed by him on land in his own occupation. In the second place the Act prohibits the employment of any child above eight years and under twelve years, old in agricultural work, unless the child has completed, if under ten years of age 250 school attendances, and if ten years of age and upwards 150 school attendances, within a period of not more than twelve months. To these provisions there are certain exemptions. The penalty for illegally employing a child is £5.

2nd.—The Factory Act (Health of Women, &c.,) which shortens the hours of labour in textile factories, and raises the age at which children can commence to work, both at half-time and full time. It also takes from the silk trade the privilege of employing younger children than were allowed to work in other factories. But no provision is made to prevent the employment of women advanced in pregnancy, and soon after parturition, which are the greatest evils in the factory system.

3rd —The Registration of Births and Deaths Act which renders the registration of Births and Deaths compulsory; and requires medical practitioners to give on application being made to them, certificates of the cause of death in any case where they have been in attendance; and directs registrars to furnish Sanitary bodies with returns of deaths at a stated charge.

4th.—The Vaccination Act Amendment Act which enables the Local Government Board to deal effectually with such Boards of Guardians as may be disposed to discourage the enforcement of vaccination.

5th.—The Working Men's Dwellings Act which facilitates the erection of dwellings for working-men on land belonging to municipal corporations.

6th—The Alkali Act Amendment Act which imposes additional limitations to the noxious gases discharged from chemical works, and extends the provisions so as to apply to gases other than muriatic acid gas.

7th.—The Sanitary Law Amendment Act which amends several of the provisions of the Sanitary and Public Health Acts, which were defective, and gives additional powers to Sanitary Authorities, of which the most important is the power to interfere with polluted wells. It is provided that if it is represented to a Sanitary Authority that the water in any well, tank, or cistern, is so polluted as to be injurious to health, they may apply to the Magistrates for an order to remedy it. The Magistrates are then to summon the person interested in the well, and may if they think fit, order the well to be closed either permanently or temporarily, or may direct the water to be used for certain purposes only.

All of these new enactments seem to have been called for by the exigencies of the time and will although they may not be perfect and complete measures, assist the promotion and preservation of public health, and the social and sanitary well-being of the people. It is not however, by merely placing laws such as these on the statute book of the realm, but by the judicious local administration and enforcement of them, that lives are prolonged and the health of the community improved. I am reminded of this by the fact that Macclesfield is still unprovided with those means for the isolation of the infected sick and dead, and for the destruction of infection, pointed out to the Board in November, 1873. *(See Appendix.)*

THE POLLUTION OF THE RIVER.

The polluted state of the rivers, not only of our own river the Bollin, but all the rivers flowing through manufacturing towns, is much to be regretted. By allowing sewage and trade refuse to flow into a river an enormous amount of manure is lost which agriculture requires, and the value of which is considerable; the water is spoilt for all domestic and many manufacturing purposes; and the atmosphere

is vitiated by vile exhalations which have a very prejudical effect on health. Formerly the pollution of rivers was due to ignorance and carelessness, but this plea can no longer prevail, since the Rivers' Pollution Commissioners have so fully and so well explained various methods of treating, effectually and profitably, sewage and the refuse of dyeworks and of other manufactories, which they have proved to possess high manural properties,

As there is no definite line of demarcation separating the purest spring water from the filthiest sewage, the Rivers' Pollution Commissioners have proposed for the purposes of efficient legislation that an arbitrary line should be drawn between waters which should be deemed polluting and inadmissible into streams, and such as should be considered innocuous and therefore admissible into river channels. They suggest that any liquid should be considered unfit to enter a stream which has the following elements in 100,000 parts by weight :—

1.—Containing *in suspension* more than three parts by weight of dry mineral matter, or one part by weight of dry organic matter.

2.—Containing *in solution* more than two parts by weight of organic carbon, or 0·3 part by weight of organic nitrogen.

3.—Which shall exhibit by daylight, a distinct colour when a stratum of one inch deep is placed in a white porcelain or earthenware vessel.

4.—Containing *in solution* more than two parts by weight of any metal except calcium, magnesium, potassium, and sodium.

5.—Containing whether *in solution or suspension* in chemical combination or otherwise more than 0·05 part of metallic arsenic.

6.—Containing, after acidification with sulphuric acid, more than one part by weight of pure chlorine.

7.—Containing more than one part by weight of sulphur in condition either of sulphuretted-hydrogen, or of a soluble sulphuret.

8.—Possessing an acidity greater than that which is produced by adding two parts by weight of real muriatic acid to 1,000 parts of distilled water.

9.—Possessing an alkalinity greater than that produced by adding one part by weight of dry caustic soda to 1,000 parts of distilled water.

10.—Any liquid exhibiting a film of petroleum or hydro-carbon oil upon its surface, or containing in suspension, in 100,000 parts, more than ·05 part of such oil.

The first three of these proposed standards of purity have reference to the discharges from the sewers of towns and from calico, silk and dyeworks, and from tanneries. The most important of them is the second, the enforcement of which is essential to the purification of most of the polluted rivers. The third standard provides against nuisance to the eye, and might be abandoned without injury to health.

The remaining standards have reference almost exclusively to chemical works. They provide against the discharge into streams of various substances which poison fish and render river water unusable for manufacturing purposes. The last standard is directed against the pollution of rivers by the manufacture of petroleum, and gas. The Commissioners state that they have framed these standards with the most careful regard for the interests of both towns and manufacturers; tney believe that by the adoption of methods described in their reports, involving no excessive expenditure, the strongest town sewage and the foulest liquid waste can be adequately cleansed, so that these standards shall not be offended against by the effluent water. The Commissioners are further of opinion that the adoption of none of them will inflict any injury at all upon manufacturers; indeed they have every reason to conclude that the adoption of these standards will save the manufacturers of this country from inflicting considerable injury upon themselves; whilst, by preserving the whole course of rivers in a comparitively clean and usuable condition, they will tend powerfully to the extension of manufactories upon the banks. One of the most crying evils, the Commissioners affirm, is the want of clean water in certain districts, and, therefore, every successful effort to make dirty water usable is a direct gain to the manufacturers and dyers.

I have dwelt somewhat at length on the subject of the Rivers' Pollution Commissioners' Recommendations because the state of the

rivers is such that legislation is imminent, and it is well for Members of Sanitary Bodies, as well as for manufacturers and dyers to know the opinions of those gentlemen who since 1868 have been diligently enquiring into the condition of nearly every English and Scotch river and who therefore possess a vast fund of theoretical and practical knowledge of the matter under consideration. A Bill has been introduced into the House of Lords by a member of the present Government, which is designed to prevent the pollution of rivers in the future, and deals with those palpable wrongs which by usage and length of time have become vested rights. Unfortunately it does not establish any standard of purity or state what is to be considered polluted water. The Alkali Act, by stating in clear, intelligible, and definite terms what the manufacturer had to avoid, has shielded the alkali manufacturer from vexatious litigation; hence it is probable that if a standard of pollution was established Corporate bodies and manufacturers would be protected in like manner.

A clause has been introduced into the Public Health Bill now under consideration in Parliament which, should it become law, will effectually prevent the river Bollin being further polluted by the sewage of the borough. It is to the effect that no local authority shall make or use any sewer, drain or outfall for the purpose of conveying sewage or filthy water into any stream or water-course, until such filthy water is freed from all excrementitious, or other foul or noxious matter. Therefore the Board of Health, prevented using any more the river as an outfall for the sewage of the Borough, will soon have to grapple with the difficulties of a system of main drainage; this will be more an engineering than a medical question, but when the proper time arrives I hope to be ready with a report on the relative merits of the various methods of treating and utilising sewage.

SANITARY SURVEY.

The house to house visitation of the Borough has been continued during the year, and the details relative to the Sanitary condition of each house entered in a series of books. As the Local Government Board have issued no form for the Sanitary Survey, and the various forms introduced to public notice by the publishers did not seem to me to be satisfactory in all points, being either too diffuse or

too defective for practical use, I compiled a form, simple in shape but sufficiently comprehensive to allow of all necessary details. This form seems to have met with approval, and has been adopted by Medical Officers of Health in other districts. Nearly the whole of the East Macclesfield District has been thus surveyed.

SEWER AIR IN HOUSES.

A very frequent source of nuisance is the escape of sewer air into houses, from the sink or slopstone pipes being connected with the yard drains. In all cases which have come under the notice of your Sanitary Officers, the owners of the houses where this state of things were found to exist have been required to disconnect the slopstone pipes from the sewer. I have attached to this report a sheet of plans showing the manner in which this is best done.* The method there sketched has been enforced in Rochdale, and other towns, and to a certain extent in Macclesfield, and has been found to answer most admirably. Many persons attempt to prevent the ingress of sewer gas into houses by trapping the slopstone pipes, with a siphon or S shaped trap, or a D trap, or a bell trap. But such means as these are as unreliable as they are unscientific, and are worse than useless, as they give rise to feelings of security which have no substantial foundations. Water, it must be remembered, has the power of absorbing a certain quantity of sewage gas, and when it is fully charged with gas, gives it off again. Hence the small quantity of water in the various kinds of sink traps soon getting over-charged with the sewer air, allows it to pass through into the house, so that the water ceases to act as a trap.

The breathing of sewage gas is a fruitful and often unsuspected source of disease. More than once I have found it the origin of an attack of Typhoid Fever, and lately I have had my attention called to two cases of Diphtheria which arose from this source. It is also probable that some cases of Puerperal Fever have their origin in the

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* The plans may be seen on application at the office of the Medical Officer of Health, Town Hall.

The method consists of the pipe from the slopstone or sink being carried through the outside wall, and terminating over or near a well-trapped grid in the yard, so that the slopstone pipe is entirely disconnected from the sewer and yard drains.

inhalation of sewer air; at all events a parturient woman must run considerable risks when surrounded by such a vitiated atmosphere. Erysipelas is another disease which may sometimes be traced to this source. But the most common disease induced by sewage gas is Diarrhœa, especially in children, it also causes loss of appitite, and makes the child pale and languid; older persons, should they escape the graver forms of disease, suffer from headaches and feverishness.

Closely allied with the prevention of the ingress of sewer air into houses, or rather part of the same subject, is the question of sewer ventilation. Means for the free and perfect ventilation of all sewers and drains ought to be provided in order to prevent the concentration of sewage gas. It has been found that in unventilated sewers the gas concentrates and becomes so very deadly, that men have lost their lives by entering them on many occasions, in London and elsewhere; and on the other hand it has been proved by experiment and by chemical analysis, that in well ventilated sewers not only is the air inoffensive to the smell, but purer than that of stables, or even of a crowded assembly room. Hence it is important to prevent the stagnation of the air in sewers, and by numerous openings from the sewers to the external air to maintain an unceasing motion and interchange betwixt the outer air and the inner sewer air, so as to render harmless the sewage gas by extreme dilution.

Writing on this subject, Mr. Rawlinson, the eminent Sanitary Engineer, says;—"Persons complain that foul smells arise from sewer and drain ventilators, and stop them up or cry for this to be done, forgetting that the escape must be somewhere, and most probably into the house or houses of those who complain. That foul smells came from ventilators is the best proof that ventilation was and is required; the true remedy will be not to stop up one, but to form a second, a third and so on, until by dilution and dispersion at several points (as far asunder as practicable,) concentration in a sewer or drain is prevented, and the sensation of smell ceases." Mr. Baldwin Latham, C.E. thus writes:—"If ventilation is not provided, as every drop of water passed into a sewer displaces an equal volume of sewer gas, the gas, if a safe exit is not provided for it, will escape at points out of

control and where least expected." And Dr. Carpenter of Croydon, thus tersely sums up the whole matter;—"I say, ventilate—don't trap."

I do not propose to enter at any length into the merits of the various systems adopted for the ventilation of sewers, many of which are very complicated and valueless, as for instance Mr. Kenworthy's plan of connecting all drains with ventilating pipes leading to the furnaces of boilers, and the plan proposed by Mr. Gibbs of endeavouring to produce a downward current by means of fans, and so draw the air out of the sewers. I believe that the simplest plan is the best; and would recommend in the case of the smaller drains that an upright tube of as near as possible the area of the drain pipe, should be fixed at the end of the ramification of the drain. This plan has been adopted in Manchester with, I believe excellent results. With regard to the larger street sewers, Mr. Rawlinson's method of having fixed openings from the sewer direct to the outer air, at intervals not greater than one hundred yards has been found to be the best in practice. To these openings it has been proposed, and the proposal in some places adopted, to add trays of charcoal for the sewer air to pass through, but they retard the ventilation and extra provision has to be made to compensate for it. The plan of using rain water pipes as ventilators is not to be commended, because in wet weather when most required to carry off the gases, they are doing duty in their proper capacity, and because as they generally terminate under the eaves, they carry the sewer air under the roof, so into the houses.

Drainage.—The drainage of Macclesfield is very defective. Excluding the hamlet of Broken Cross, and the houses situate in the outskirts and more sparsely populated parts of the Borough, there are in Macclesfield 5,199 houses which are unprovided with a proper system of drainage. By a proper system, I mean a sewer of sufficient depth to drain the cellars of the houses. These houses may be divided into two classes; the first, including 3,217 houses, are those situate in streets which are not perfectly sewerless, but in which the drains are too shallow for the purpose and are defective in other ways. In the second class, in which 1,972 houses are included, the houses are built in streets which have no pretentions whatever to any system of

drainage, and the sewage is allowed to flow on the surface of the ground. Derby Street and Stanley Street were, before they were re-sewered, good examples of the first-class. It may be remembered that when I drew attention to the sanitary state of these streets in November, 1873, pools of green and stagnant water giving off odours far from pleasant, were found in many of the courts, and other back yards and courts were occupied by immense cesspools. This state of things was owing to the shallowness of the street "sewer,"—if a rough construction of flags and rubble stones may be dignified by that name. It is a pleasant duty to announce that so far as these two streets are concerned, the cesspools with their filthy contents, the pools of fœtid water, and the loose rubble drains are now things of the past; as the Board during the year took up the old drain, paved and re-blocked the streets, and laid down a main sewer of sufficient depth and size to thoroughly and effectually drain the houses. The houses in Peel Street, Hobson Street, and Ryle Street, may be taken as fair examples of the second class. In a report presented to the Board in June, 1874, I drew attention to these streets. In Hobson Street the sewage runs down an open channel on one side of the road; in Peel Street it has made for itself channels in the roadway. I hope to be able to say in my next annual report that these are evils which exist no longer.

141 houses chiefly in Derby Street and Stanley Street have been drained during the year. This makes 3044 houses which are as far as I can learn thoroughly well drained, against 5199 houses which are not.

Closet Accommodation.—As a rule the out-door closets in Macclesfield are defective in construction, and insufficient in number. All the older closets have been built upon wrong principles; the ash middens were made far too large, they are devoid of roof, and being built with porous bricks and bad mortar allow the liquid and semi-solid contents to escape either into the subsoil, or the yard, or the neighbouring buildings. Whilst under certain atmospheric conditions the seething and fermenting contents of these roofless pits give off vile exhalations, wherefrom generate Typhoid Fever and Diarrhœa.

The closets which are being built now are very different to the old ones: they are properly covered by a roof, and amply ventilated,

and not only is the rainfall carefully excluded, but by an ingeniously contrived cavity wall for the foundations, the subsoil water is prevented soaking into the ashpit, and the excreta prevented escaping through the walls into the ground.

In many instances the closets are also insufficient in number. In one case it was found that only two closets were provided for eighteen houses; in another fourteen houses were provided with two closets, and in a third case, eighty people the occupants of nine houses had the use of only one closet. The Board have the power to compel owners of property to erect one closet to each house, but in the case of smaller cottage houses it has not been considered wise to do so. At first the rule in Macclesfield seems to have required at least one closet for the use of two houses,* but when I entered on my duties as Officer of Health, I found that the regulation had been relaxed so as to allow in old property one closet to three houses. I see no reason to recommend any further relaxation of this rule. From enquiry I find in Manchester each new cottage is required to have its own closet and ashpit, and in the case of old property, not less than one closet is allowed to three small cottages. In Liverpool and Leek similar rules are in force. In Rochdale all new houses and all old houses rated at £10 and upwards must have a separate closet, and not more than three old houses under £10 rateable value are allowed to use one closet. In the Chesterfield Rural Sanitary District and the four adjacent urban districts for each new house built, one closet must be erected, and in case of old houses not less than one closet for every two houses must be provided.

The number of closets built during the year is 36.

Public Street Conveniences.—During the year the Inspector presented a report upon the state of the urinals attached to public-houses in the borough. Most of these conveniences are both indecent and disgusting by reason of their improper position upon public footpaths their defective construction and absence of privacy. The erection of suitably constructed public urinals in place of those situate near the doors of public-houses is an undoubted necessity. A step has been taken in

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*See Report of the Local Board of Health, for 1853.—"The Board require one privy or water closet for two houses."

this direction by the Board erecting one at the bottom of Park Street; but many more in various parts of the borough are still required. No valid objection can be raised to their erection, if they are made externally ornamental, so as to give no offence to the eye, and are kept clean and free from smell.

Filthy Houses.—The Inspector has caused 286 houses which were filthy and unwholesome to be cleansed and lime-washed, In two cases it was necessary to obtain a peremptory order from the Board to compel the parties to do so. Those persons too poor to purchase it, have had the lime-wash gratuitously supplied to them, and brushes lent to them for applying it.

Common Lodging Houses.—There are in Macclesfield 19 common lodging-houses, accommodating 333 persons. From the police records it appears that some of these houses have got into the hands of improper persons. The magistrates having however power to suspend the license of any person acting in the care of a common lodging-house, who is convicted of a third offence.

Slaughter Houses.—The Twenty-six registered slaughter houses in Macclesfield, have been regularly inspected. As nearly all of them are closely surrounded by houses, and some are in very objectional situations, the necessity of strict inspection and of compliance with the bye-laws is of the first importance.

Diseased Meat.—3,624lbs. of meat and 526lbs. of fruit have been condemned and destroyed as unfit for human food during the year. Two persons have been convicted by the Magistrates for having in their possesion unsound meat intended for the food of man.

TABLE I.

Abstract of Work done in the Sanitary Department during the year ending December 31st, 1874.

Number of Nuisances remaining in the books January 1st, 1874...	324
Number of new cases of Nuisance entered in the books during the year.....	796
Number of Nuisances removed.....	770
Number remaining un-removed December 31st, 1874	350

Number of houses inspected	2409
Number of houses specially inspected on account of infectious diseases	84
Number of houses disinfected after infectious disease	78

Peremptory Notices under the Seal of the Board.

To provide, repair, or cleanse house drains	211
To provide proper and sufficient closet accommodation	38
To remove other nuisances	77
Total	326

Number of houses drained	148
Number of slopstone pipes disconnected from the sewer	63
Number of new closets built	36

Visits paid to common lodging-houses	654
Visits paid to slaughter houses	681

Supplies of Lime-wash given to the poor	396
Brushes lent for applying the same	276
Supplies of Disinfectants given to the poor	285
Supplies of Vermin Killer given to the poor	94

Number of Summonses issued for non-compliance with Board's Notices	3

PART II.

Vital Statistics for the Year 1874.

BIRTHS.

Birth rate of Macclesfield ..... 33·4 per thousand.
Birth rate of England ..... 36·1 „ „

The number of children born alive within the borough during the year was 1221, being exactly the same number as in the previous year. The births exceeded the deaths by 168, but in calculating the increase of the population, allowance must be made for emigration and immigration.

DISTRICT BIRTH RATES.

West Macclesfield ..... 31·3 per thousand.
East Macclesfield ..... 34·4 „ „
Sutton ..... 36·5 „ „
Hurdsfield ..... 36·0 „ „

The following table shows the number of Births, and of Illegitimate Births in the four districts of the borough.

TABLE II.

Districts.	Including Illegitimate Births.			Illegitimate Births.		
	Total.	Males.	Females.	Males.	Females.	Total.
West Macclesfield	541	264	277	23	25	48
East Macclesfield	362	172	190	14	24	38
Sutton	188	105	83	6	2	8
Hurdsfield	130	72	58	6	5	11
Total	1221	613	608	49	56	105

QUARTERLY BIRTH RATES.

First Quarter ..... 33·3 per thousand.
Second Quarter ..... 34·3 „ „
Third Quarter ..... 33·7 „ „
Fourth Quarter ..... 32·1 „ „

The following table shows the number of Births and of Illegitimate Births during each quarter of the year.

TABLE III.

Quarters.	Including Illegitimate Births.			Illegitimate Births.		
	Total.	Males.	Females.	Males.	Females.	Total.
1st Quarter.....	307	142	165	12	18	30
2nd Quarter	313	158	155	16	11	27
3rd Quarter	308	163	145	8	13	21
4th Quarter	293	150	143	13	14	27
Total.....	1221	613	608	49	56	105

SEX

Of the 1221 children born alive 613 were males and 608 females. According to the birth registers of England, 104 boys are born to 100 girls; this is very nearly the proportion in which children were born in the borough in 1874.

CHILDREN BORN OUT OF WEDLOCK.

In my report for the year 1873, I pointed out the large number of illegitimate children born in the borough which then amounted to 10·8 per cent, of the total births. In 1874 the illegitimate births numbered 105, being 27 less than in the previous year.

DEATHS.

Death rate of Macclesfield.....	26·6	per	thousand.
Death rate of England.....	22·3	„	„
Zymotic death rate of Macclesfield.....	3·5	„	„
Zymotic death rate of England.....	3·6	„	„

Deaths to the number of 1053 occurred in the borough during the year; giving a death rate of 26·6 per thousand. The death rate of 1873 was 26·1, and of 1872 25·0.

The following table, extracted from the Registrar General's Annual Summary of Births and Deaths, enables us to compare the Birth rate and Death rate of Macclesfield for 1874, with the corresponding rates of the twenty-one chief towns in the United Kingdom for the same period.

TABLE IV.

TOWNS.	Birth Rate.	Death Rate.
London	35·7	22·5
Portsmouth	31·8	20·4
Norwich	31·7	23·5
Bristol	36·4	22·7
Wolverhampton	39·8	23·9
Birmingham	41·3	26·8
Leicester	41·0	24·1
Nottingham	35·2	24·8
Liverpool	38·9	32·0
Manchester	39·2	30·4
Salford	44·2	29·6
Oldham	41·2	29·7
Bradford	40·0	27·0
Leeds	41·5	28·7
Sheffield	41·6	26·9
Hull	40·9	25·5
Sunderland	40·8	23·4
Newcastle-on-Tyne	40·9	29·2
Edinburgh	32·2	23·6
Glasgow	39·2	31·1
Dublin	28·3	26·0
Mean	37·2	25·4
Macclesfield	33·4	26·6

All of the above towns, with the exception of four, have higher birth rates than Macclesfield. In eleven of the towns the death rate is lower than Macclesfield. But it must be remembered that in each of the twenty-one towns, the density of the population is greater than it is in Macclesfield, and therefore the death rate *cœteris paribus* should be higher.

The death rate for 1874 compares still more unfavourably with the rates returned by the fifty English large town districts (similar in size to Macclesfield,) next in importance to the twenty-one towns in the table. The mean death rate of these fifty large town districts was 24·5 per thousand, or more than two per thousand less than Macclesfield.

DISTRICT MORTALITY.

Table showing the number of Births and Deaths, and of deaths from certain specified causes in the four districts of the borough.

TABLE V.

DISTRICTS.	BIRTHS.	DEATHS.	DEATHS OF		DEATHS FROM								Inquest Cases.	Deaths in Public Institutions.
			Children under one year of age.	Persons aged 60 years and upwards.	Small Pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhœa.	Cholera.	Violence.	
West Macclesfield, Area 1716 acres. Population 17,238.	541	538	87	166	...	5	5	...	6	10	18	...	8	15	162
East Macclesfield, Area 881 acres. Population 10,520.	362	292	92	70	...	8	3	...	9	7	18	...	2	13	...
Sutton, Area 360 acres Population 5,140.	188	126	37	25	...	8	1	...	10	1	5	...	...	9	...
Hurdsfield, Area 274 acres. Population 3,603.	130	97	33	11	...	5	2	...	...	1	8	...	1	2	...
Total.....	1221	1053	249	272	0	26	11	0	25	19	49	0	11	39	162

TABLE VI.

Showing the Birth rate, Death rate, and rate of the seven chief Zymotic Diseases per 1,000, the per centage of deaths of children to births registered, and the analysis of the mortality in the four districts of the borough.

DISTRICTS.	Rates per thousand.			Percentage of Deaths of Children under 12 months old, to Births registered.	Percentages to total Deaths.		
	Births.	Deaths.	Deaths from the seven chief Zymotic Diseases.		Deaths of Children under twelve months old.	Deaths of People aged sixty years and upwards.	Deaths from the seven chief Zymotic Diseases.
West Macclesfield.....	31·3	20·7	2·5	16·0	14·3	30·8	8·1
East Macclesfield	34·4	29·6	4·2	25·4	31·5	23·9	15·4
Sutton.....	36·5	27·8	4·8	20·0	29·3	19·8	19·0
Hurdsfield.....	36·0	30·5	4·4	25·3	34·0	11·3	16·5

Of the four districts, into which Macclesfield is for the purpose of these mortality returns divided, Hurdsfield has the highest death rate, 30·5 per thousand; East Macclesfield comes next with a rate of mortality 29·6 per thousand; then Sutton whose death rate is 27·8, and lastly West Macclesfield with a death rate of 20·7. This latter district has not only the smallest death rate, but has also suffered least from Zymotic diseases,—the Zymotic mortality rate being 2·5 per thousand in West Macclesfield, whilst it is over four per thousand in the three other districts.

But perhaps the superiority of the sanitary condition of West Macclesfield as compared with the other parts of the town is best seen in the comparative mortality amongst children. In East Macclesfield and Hurdsfield, of every hundred children born alive, twenty-five die before they are twelve months old; in Sutton twenty out of each hundred so die; whilst in West Macclesfield only sixteen die before reaching that age.

Again; in each hundred deaths occurring in Hurdsfield, eleven people only have reached the age of sixty years; in Sutton, nineteen in every hundred have arrived at that age; in East Macclesfield the number is higher, twenty-three in each hundred deaths being sixty years old and upwards; whilst in West Macclesfield as many as thirty in every hundred have reached or exceeded that age.

Thus we see that the chances of rearing healthy offspring, of escaping Zymotic disease, and of attaining longevity are greatest in the West Macclesfield district. Nor is it difficult to account for the comparative salubrity of West Macclesfield. We need simply refer to the many well paved and well drained streets in Newtown in the West and then to the drainless, sewage reeking streets on the Common in the East, and the equally bad or worse streets of Hurdsfield and Sutton, and at the same time recollect that West Macclesfield has not the disadvantage the other districts have, of having its air poisoned by the emanations from a foul and filthy river.

MORTALITY AS TO SEASONS.

TABLE VII.

Table showing the number of Births and Deaths, and of Deaths from certain specified causes, during each quarter of the year 1874.

QUARTERS.	Births.	Deaths.	Deaths of		Deaths from									Inquest Cases.	Deaths in Public Institutions.
			Children under one year old.	Persons aged sixty years and upwards.	Small Pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhœa.	Cholera.	Violence.		
First Quarter	307	277	44	77	...	3	5	...	...	6	5	...	...	13	53
Second Quarter.....	313	255	63	57	...	7	3	...	4	3	4	...	3	4	38
Third Quarter	308	252	90	54	...	8	...	...	8	3	37	...	5	11	34
Fourth Quarter.....	293	269	52	84	...	8	3	...	13	7	3	...	3	11	37
Total	1221	1053	249	272	0	26	11	0	25	19	49	0	11	39	162

From the meteorological tables attached to this report it will be seen that the meteorology of the year was remarkable for two conspicious facts; first, the unusually high temperature and great atmospheric pressure which prevailed during the first quarter; and secondly, the very variable, wet and exceptionally cold weather experienced during the last quarter. The weather has generally a greater or less influence on the relative mortality of the four quarters of the years. A high rate of mortality in any one given quarter is usually accounted for by the excessive number of deaths from pulmonary diseases, or by the presence of some infectious disease, or by a combination of both.

In 1874 the first and last quarters have the highest death rates. The third quarter of the year was most fatal to children; this is attributable to the large number (37) of fatal cases of diarrhœa, nearly all of which occurred in infants. In the fourth quarter owing to the exceptionally cold weather, before alluded to, we find the greatest mortality among old people.

MORTALITY AS TO SEX AND AGE.

The 1053 deaths comprise 542 males and 511 females. Calculating that males constitute 49 per cent. and females 51 per cent. of the living population, the rate of mortality amongst males will be 27·8 per thousand, and the death rate of females 25·1 per thousand.

Infantile Mortality.—249 children under twelve months old died during the year. As children reflect to some extent the health and constitutions of their parents, and are particularly sensitive to sanitary defects, the rate of infantile mortality may be considered a test of the sanitary state of the town. In the section devoted to district mortality, I pointed out the relatively small number of infant deaths in the West Macclesfield district, compared with the other parts of the borough. It will be well to now compare the rate of infant mortality in Macclesfield with other districts. According to the Registrar General's reports during the ten years 1861-70, fifteen out of every hundred children born alive died before they were twelve months old, the proportion varied from ten per hundred in the healthiest rural districts to twenty-five or more in the most unhealthy towns. In 1874 the proportion of children thus dying in the 18 largest English towns was seventeen in every hundred, in London it slightly exceeded fifteen; whilst in Macclesfield more than twenty of every hundred children died before they were one year old. Nor is this the worst; referring to table VI it will be seen that in two districts of the borough —East Macclesfield and Hurdsfield—the rate was as high as twenty-five per hundred, that is, one fouth of the children born in these two districts die before they have been in the world twelve months. I entered somewhat at length into the causes of the high death rate among children in my first annual report, therefore, I do not propose to enter into that question now. The figures I have quoted above and those in the fourth column of table VI, show the waste of infant life in Macclesfield more eloquently than any words of mine can.

Deaths at the Reproductive Age.—324 deaths took place at the reproductive age (15-55). Consumption was the most fruitful cause of death at this age.

Deaths of Old People.—272 persons died aged sixty years of age and upwards; of this number 120 had reached or exceeded the age of

sixty-five, 75 that of seventy-five, 15 were eighty-five or upwards, and one person is reported to have been 102 years old.

MORTALITY AS TO DISEASE.

(SEE TABLE VIII.)

Class I.—*Zymotic Diseases.*

1874 compares very unfavourable with the preceeding year in the number of deaths from Zymotic or preventible diseases, as illustrated by the following table:—

TABLE IX.

Showing the number of deaths from the seven principal Zymotic diseases during the years 1873 and 1874.

DISEASE.	1873.	1874.
Small Pox	0	0
Measles	3	26
Scarlet Fever	5	11
Diphtheria	1	0
Fever — Typhus	3	1
Fever — Typhoid or Enteric	8	12
Fever — Continued	4	6
Diarrhœa	34	49
Whooping Cough	6	25
Total	64	130

The death rate from these seven diseases is 3·5 per thousand per annum against 1·7 in the preceeding year.

Diarrhœa is credited with 49 deaths; it was most fatal during the third quarter of the year, children were the chief sufferers, and it was worst in the badly-sewered districts. The causes of this disease are many. It may be induced by eating raw unripe fruit, or in infants by improper feeding, or more frequently by fœcal emanations.

26 deaths from Measles. I am afraid that this number has been increased by the carelessness or apathy of mothers, many of whom neglect to obtain medical advice when their children are suffering from Measles until Inflammation of the Lungs has supervened and the case is almost hopeless.

Similar remarks will apply with equal force to the 25 deaths from Whooping Cough.

Eleven deaths were caused by Scarlet Fever. This is one of the most infectious of the preventible diseases. The patient should be strictly isolated until the skin has ceased peeling off; the room, the patient's clothes and bedding ought then to be properly disinfected.

Fever caused nineteen deaths, of which twelve were from Enteric or Typhoid Fever. Enteric Fever will generally found to be caused by either sewage tainted water, sewage satu rated soil, or sewage polluted air; hence, it has been suggested as key to the sanitary state of a district. In each case (except one at the Asylum), which has originated in Macclesfield, sanitary defects have been found in the building in which the person either lived or worked.

Small Pox and Diphtheria have caused no deaths during the year. No doubt the absence of the first disease from our midst depends to a great extent on the rigid enforcement of vaccination by the Board of Guardians.

Passing on to the other deaths in the miasmatic order, seven deaths are noticed from Erysipelas and four from Puerperal Fever. There is strong evidence to prove that both these diseases if not caused are greatly aggravated by local sanitary defects.

Among the enthetic diseases are five deaths from Syphilis; four are of children who had inherited it from their parents, the other was a woman who had acquired it. One death is reported from Hydrophobia.

The only death in the dietic order are four from alcoholism. I am afraid these deaths do not represent the whole of the fatal effects of drink.

Class II.—*Constitutional Diseases.*

Constitutional diseases are divided in two orders :—Diathetic and Tubercular. Thirty deaths are included in the first of these orders of which twenty-two are due to cancer in its various forms. Dropsy and Mortification are each accountable for four deaths. With regard to Dropsy it must be remembered that this number does not represent the number of persons dying dropsical, as this disease is nearly always associated with organic changes in the heart, liver or kidneys, and the death registered as due to disease of such organs.

Tubercular diseases show a slight increase more especially noticed in Scrofula (34 deaths.) To Phthisis (consumption) 105 deaths are referred, only three more than last year; the mortality from this disease is still in excess of the average for England, as pointed out in my last report. To Hydrocephalus (water on the brain) and Tabes Mesenterica, (a turbercular disease of childhood) twelve deaths are due.

Class III.—*Local Diseases.*

This class comprises the pure inflammations and the ~~total~~ local disorders of the eight great systems of organs composing the body. The causes of 481 deaths fall under this head.

Diseases of the Nervous System.—The diseases of the Brain Spinal Marrow, and Nerves caused 172 deaths, 32 by Apoplexy 40 by Paralysis, 17 by Epilepsy, 49 by Convulsions, (all of which were children under five ;) 8 by Inflammation of the Brain (cephalitis,) and 25 by other Brain Diseases, chiefly softening of that organ. Insanity is credited with one death. Insane people die of Consumption, Paralysis and many other affections some of which are and others are not the cause or effect of the mental disease; so that this one death in no way represents the number of deaths occurring amongst lunatics.

Diseases of the Heart and Organs of Circulation caused 68 deaths; eleven less than in the preceeding year.

Diseases of the Organs of Respiration.—The Respiratory organs were affected by diseases which were fatal in 173 cases, 115 of Bronchitis, 46 of Pneumonia (inflammation of the lungs), seven of Asthma, and four of Pleurisy. Bronchitis was especially fatal to the

aged, 52 people aged 60 years and upwards having died from this disease.

Diseases of the Digestive System.—The diseases of the stomach, intestines, liver and other organs concerned in digestion were the causes of 37 deaths. In twenty cases the stomach or intestines were affected, in the other seventeen the liver was the seat of disease.

Diseases of the Urinary Organs were fatal to seventeen persons, including fourteen whose deaths were referred to various diseases of the Kidney, and three to Cystitis (Inflammation of the Bladder).

Diseases of the Reproductive Organs, of the Organs of Locomotion, and of the Integumentary System were fatal to four, three, and and seven lives respectively.

Class IV.—*Developmental Diseases.*

The human frame with all its complex organs and all its elaborate mechanism is developed from a simple cell; after existing for a series of years and undergoing constant changes of its substance, it gradually decays and dies. Derangements and imperfections of the processes of development and the decay itself constitute a class of diseases called Developmental, to which 181 deaths are referred.

Among the developmental diseases of childhood eight deaths are recorded from various malformations; of these four are from Spina Bifida (imperfect development of the spine), and two from Cyanosis (imperfect development of the heart). Ten deaths are of children born prematurely, in a state of great vital debility; they breathed for a few hours or days, and then died Teething is certified as the cause of twenty-two deaths.

Five deaths are referred to Childbirth; to these should be added four others who died after Childbirth from that fearful scourge Puerperal or Childbed Fever (metria).

64 pessons died of "old age," or natural decay of the body. 72 other persons died of gradual wasting away in which the cause of the wasting was not discovered, and the deaths certified as due to atrophy or debility; 53 of these were children under twelve months old.

Class V.—*Violent Deaths.*

Eleven deaths are included in this class; eight were the result of accidents, and three were suicides.

Causes not Specified.—The comparatively large number of twenty-four deaths have after inquests, been entered in the registers as due to "Natural causes, suddenly." Of course such entries as these are valueless, for the purposes of classification.

In summing up the vital statistics for 1874 we find a higher death rate than a healthy state of the town warrants, an excessive infantile mortality, and an undue proportion of deaths from Zymotic diseases, —those diseases which in the words of Dr. Farr "infest the habitations of the poor and strike the artisan in his strength down from comfort into helpless poverty; which carry away the infant from its mother's breast, and the old man at the end of life; but whose direst eruptions are excessively fatal to men in the prime and vigour of age." Can these things be prevented occurring in the future? Undoubtedly; as certainly as the transgression of the laws of nature shorten life, so by observing those laws may life be prolonged. Thus it is that the Board of Health, although it possesses very great powers for the protection of the public health, is not to be considered solely responsible; private individuals as well as Corporate Bodies have their duties to perform, and each inhabitant of the borough may do something to cause an amelioration. The clergy by inculcating lessons of temperance, morality, and cleanliness; the landlord by ready compliance with the orders of the Sanitary Authority, and by seeing that his houses are well-ventilated, clean and free from nuisance; the mother by the careful nursing and more judicious feeding of her young offspring; the district visitor and the benevolent by the circulation and distribution of tracts in which the laws of health are explained in simple and plain language;—all these may in their several ways help to bring about a better state of things, a brighter future, to prevent disease, to prolong the period of existence and to save life.

In concluding this, my second annual report, I feel I cannot allow the opportunity to pass without thanking the Members of the Board of Health and the Corporation generally, especially those gentlemen who have acted as Chairmen and Members of the past and present Sanitary Committees, for their cordial co-operation and support which they have invariably afforded me, and without expressing a hope that these pleasant relations may continue as long as I have the honour of acting as their Medical Officer of Health.

I have the honour to be,

Mr. Chairman and Gentlemen,

Your obedient servant,

GEORGE BLAND,

Medical Officer of Health.

To the Local Board of Health,
Macclesfield.

TABLE X.

MONTHLY METEOROLOGICAL MEMORANDA 1874.

MONTHS.	Mean Temperature.	Mean Atmospheric Pressure.	Rainfall.		Relative proportion of Wind.				Mean Amount of Ozone.
			No. of Wet Days.	Amount Collected.	N.	E.	S.	W.	
	DEGREES.	INCHES.		INCHES.					
January...	43·1	29·95	21	3·12	5	1	11	14	3·5
February	39·3	29·95	15	2·45	5	3	12	8	3·3
March	45·1	30·14	16	3·10	7	5	7	12	5·8
April...	50·3	29·83	13	1·78	4	5	10	11	3·8
May..	50·6	29·99	18	2·03	12	7	4	8	4·1
June	57·4	30·11	8	0·51	10	4	4	12	3·0
July.	62·5	29·96	13	2·82	1	5	8	17	2·5
August	59·7	29·86	22	4·24	3	5	8	15	3·1
September	56·5	29·73	15	4·45	2	3	12	13	2·4
October	51·3	29·79	22	3·10	4	6	11	10	3·2
November	43·7	29·91	14	5·52	5	9	6	10	3·1
December...	34·1	29·78	13	3·10	12	12	4	3	2·8

The highest temperature was registered on July 29th, when the thermometer stood at 125° in the sun, and 88° in the shade; the lowest temperature observed was 13°, registered December 30th.

The highest point of the barometer was 30·36 (March 6th); the lowest 28·26 (November 29th).

The total number of days on which rain fell was 190; the total amount collected 36·22 inches. The greatest fall took place October 6th, when 1·49 inches fell.

The test and scale used for the ozone are Schoubein's. The greatest amount present in the atmosphere at one time was on March 21st, and May 8th.

APPENDIX.

ISOLATION AND DISINFECTION.

Extracted from a report presented to the Board of Health, November 20th, 1873:—

"Isolation.—With regard to isolation, or separation of the infected from the non-infected, two conditions are essentially necessary:—1. That the patient should be placed as soon as the contagiousness of his disease is discovered in a well-ventilated and lighted apartment, situate some distance from the rooms inhabited by the rest of the family, and approached if possible by a separate staircase and landing; and that all carpets, bed-hangings, window curtains, and superfluous articles of furniture should be removed from the sick chamber. 2. That those nursing the patient should avoid all contact with the other inmates of the house. It is apparent that such a system of domestic quarantine can be carried out in comparatively few houses; and it is equally apparent that nothing less than the perfect fulfillment of the two conditions for isolation which I have laid down can possibly be effectual in checking the spread of any infectious disease. The importance of isolation as a sanitary measure has not escaped the attention of Parliament. It has, by the 37th section of the Sanitary Act, 1866, given power to the Sanitary Authority of any town or district to provide for the use of the inhabitants hospitals for the reception of the infected sick, and last year the Local Government Board, deeply impressed with the gravity of the subject, issued a memorandum calling the attention of the Local Boards of Health to it, and urging as a condition of the first importance that the accommodation for isolating cases of infectious disease should be ready beforehand. It is much to be regretted that that recommendation has not been acted upon in this borough, for unfortunately during the past few weeks cases have come under my notice in which there being no means for enforcing perfect isolation, the contagion has spread and people have become infected who might otherwise have escaped. It may be objected, however, that accommodation for fever patients is already provided at the Union Workhouse and at the Infirmary. But neither of these institutions

belong to you as a Board of Health, neither have you the right, acting as the Sanitary Authority of the borough, to order the removal of cases of infectious disease into either of them. Nor do these two Institutions afford accommodation to all classes of the community; the Union Hospital belonging as it does to the Guardians of the Poor, is intended for those chargeable to the poor rates; and the Infirmary, built and supported by charitable contributions, is for those who, not being paupers, are still not in a position to pay for medical attendance and who may be so fortunate as to obtain a subscriber's recommenation. A fever hospital would in addition afford means for insolating patients belonging to other classes of the community. Each patient, who is able, would be expected to contribute towards his maintenance in the hospital a certain sum in proportion with his means (such payments varying in most towns from 2s 6d per day to 2s 6d per week) and each would be attended by his own medical man, who would supply, the patient with medicines and look to him for reimbursement. So that the cost of keeping up such an establishment would be very small indeed compared with the great amount of good it would do in checking the spread of and in stamping out infectious diseases.

The speedy separation of the dead from the living is of no less importance than the isolation of the sick from the healthy. Unfortunately cases are of frequent occurrence where there being no place to which to remove those dead of infectious diseases, and the house being small the corpse has of necessity had to remain for several days in the bedroom occupied by other members of the family. The law to meet such cases as these has by a Public Health Act, 1848, empowered Sanitary Authorities to provide, and make bye-laws for the management of, premises in which the corpse may be received, and decently and carefully kept previous to interment, and it is further ordered by the Sanitary Act, 1866, that where the corpse of one who has died of infectious disease is retained in a room in which persons live or sleep, or where a corpse is in such a state as to endanger the health of the inmates of the house, a justice, on the certificate of a medical man, may order it to be removed to the public mortuary, and buried within a limited time. It is to be regretted that this section of the Sanitary Act is inoperative so far as Macclesfield is concerned, in consequence of no public mortuary having been provided. That

such a place is needful will, I think, be gathered from the two following cases which I take at random from amongst others which have fallen under my notice. The first case is that of a girl who died of typhoid fever, and whose corpse was kept for four days and nights in the only bedroom of the house in which five people slept. The other case is where the corpse of a man, who also died of typhoid fever, was kept for five days in a small, low, ill-lighted, badly-ventilated-room in which his family lived and had their meals. The pernicious effects of such cases as these on the health and the means they afford of spreading disease, must be apparent to all. Yet hitherto your Sanitary Officers have been unable to interfere for the reason given above. I hope therefore that you will take into consideration the desirability of providing for the use of the town a building to be used as public mortuary.

Disinfection.—I now proceed to offer a few remarks on the subject of disinfection; premising by saying that disinfection must not be looked upon as a substitute for isolation, but as its adjunct It may be remembered that in June I recommended as the best disinfectant for drains and cesspits a solution of Sulphate of Iron (green copperas) and carbolic acid; the iron being used as a precipitant for the flocculent and organic matter, and the carbolic acid as a deodorant. It is, however, more particularly the disinfection of the sick chamber, aud the articles contained therein to which I wish to call your attention. The popular way of disinfecting a sick room is merely to throw on the floor a little carbolic acid, chloride of lime, or some other disinfectant. Such means as these, however, are of little or no use, and should be strongly deprecated, as they give rise to feelings of safety which have no real foundations. The chief aim of disinfection should be the destruction of the germs of the disease; and this should be done as far as practical at the time of their issue out of the body. For this reason all the dejections should be received in vessels containing a disinfectant, such as carbolic acid; and a cup charged with charcoal should be near at hand to receive the expectoration, and it is also advisable, especially in cases of smallpox and diphtheria, for the patient not to use pocket handkerchiefs, but to substitute in their place pieces of rag which should be burnt immediately after use. All the linen from the bed, and the clothes from the patient should be,

without delay, put into a tube containing a solution of chloride of lime or carbolic acid and water, which should be near at hand ready for use. It is also advisable to hang over the doorway a sheet saturated with carbolic acid. Should the case terminate fatally, a layer of charcoal or of carbolic powder should be put into the coffin before receiving the corpse. The sick room having been vacated, its thorough disinfection should be proceeded with. This is best effected by means of sulphurous acid given off by burning sulphur, or by chlorine gas generated either by the action of hydrochloric acid on black oxide of manganese, or of sulphuric acid on common salt. But it is important in using either the sulphurous acid or the chlorine gas to so thoroughly impregnate the atmosphere with it as to render the air irrespirable, otherwise the object in view will not be attained. It is well, too, to remember that both sulphurous acid and chlorine will bleach coloured articles. The plan I have generally adopted has been this:—the windows and all crevices through which air might enter being carefully closed, and the various articles in the room being spread out, salt and sulphuric acid are mixed in a vessel in the centre of the room, the disinfector quickly withdrawing in order to avoid inhaling the injurious fumes. Next day the room is opened, the window drawn down, and a free current of air admitted. The paper should then be stripped from the walls; the ceiling should be washed with limewash to which some carbolic acid has been added; the floors cleansed with a solution of chloride of lime in the proportion of one pound to two gallons of water; and the paint work, if not repainted, should be washed with carbolic acid soap and hot water.

We must now proceed to consider the disinfection of the infected bedding and clothes, which masifestly are of vast importance, as cases are not unfrequently occurring where the contagion had been spread by means of them. What then are the best means for disinfecting such articles? I answer unhesitatingly that the only effectual way is to expose them for two or three hours to a temperature of from 220° to 240°, in a suitable chamber. This Parliament has recognised, and by the Sanitary Act, 1866, has empowered Sanitary Authorities to provide a proper place with the necessary apparatus for the disinfection of woollen articles, clothing, and bedding. Bearing in mind the number of cases which under my own observation have occurred, in which

people have become infected by means of bedding and clothing, I most strongly urge you to erect such a disinfecting apparatus. For although we may deoderise cesspools, and disinfect sick rooms, yet we have not at present the means at hand for disinfecting bedding and clothing, and it is through these that an epidemic may be kept alive. It is also on the score of economy that I advise the erection of a disinfecting chamber, as, in the absence of such an apparatus, much bedding, clothing, and other articles which have been exposed to contagion must be ordered to be destroyed, for which, under the Public Health Act, 1872, you, acting as the Sanitary Authority for this borough, will have to compensate the owners.

In conclusion, I feel I should not be doing my duty as your Officer of Health unless I brought these points prominently before your notice, viz., the absence of any means of isolating the infected; the want of a public mortuary; and the necessity for providing a disinfecting stove. Without these three things the sanitary arrangements of a town cannot be complete—cannot be perfect—and without them we cannot hope to combat successfully any epidemic which may visit us. Many other towns, as for instance the smaller neighbouring town of Leek, have already provided these things, and are proving them to be inestimable boons. It is the judicious expenditure of money for such purposes as these which not only affords the means of preventing sickness and death, but may also save a tenfold subsequent expenditure in poor law relief for widows and orphans.

J. H. WOOD, PRINTER, JORDANGATE, MACCLESFIELD.

TABLE 8—CAUSES OF DEATH AT DIFFERENT PERIODS OF LIFE IN THE BOROUGH OF MACCLESFIELD, 1874.

CLASS.	CAUSES OF DEATH.	ALL AGES.	UNDER 1 YEAR.	1	2	3	4	TOTAL UNDER 5 YEARS.	5–	10–	15–	20–	25–	35–	45–	55–	65–	75–	85–	95 and upwards	CAUSES OF DEATH.	CLASS.
	ALL CAUSES	1053	249	74	26	21	14	384	23	8	28	37	61	90	98	113	120	75	15	1	ALL CAUSES	
	SPECIFIED CAUSES	1023	239	74	25	21	14	373	23	8	28	36	60	86	92	110	117	74	15	1	SPECIFIED CAUSES	
	(CLASSES.)																				(CLASSES.)	
I.	ZYMOTIC DISEASES	167	66	25	8	10	5	114	9	...	3	4	8	3	6	8	5	6	1	...	ZYMOTIC DISEASES	I.
II.	CONSTITUTIONAL ,,	183	12	9	1	4	3	29	5	4	17	22	26	27	20	18	10	5	...	...	CONSTITUTIONAL ,,	II.
III.	LOCAL ,,	481	78	26	12	5	6	127	7	4	8	10	22	48	63	79	82	29	2	...	LOCAL ,,	III.
IV.	DEVELOPMENTAL ,,	181	83	14	3	1	...	101	...	...	...	...	3	4	2	5	19	34	12	1	DEVELOPMENTAL ,,	IV.
V.	VIOLENT DEATHS ,,	11	...	...	1	1	...	2	2	...	...	...	1	4	1	...	1	...	...	...	VIOLENT DEATHS	V.
	(ORDERS.)																				(ORDERS.)	
I.	1. MIASMATIC DISEASES	153	62	25	8	10	5	110	9	...	3	4	7	2	4	6	3	5	...	...	1. MIASMATIC DISEASES	I.
	2. ENTHETIC ,,	10	4	...	...	...	...	4	...	...	...	...	1	...	...	1	2	1	1	...	2. ENTHETIC ,,	
	3. DIETIC ,,	4	...	...	...	...	...	...	...	...	...	...	...	1	2	1	...	...	...	...	3. DIETIC ,,	
	4. PARASTIC ,,	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4. PARASITIC ,,	
II.	1. DIATHETIC DISEASES	30	...	...	...	...	...	...	...	...	...	...	2	6	6	8	5	3	...	...	1. DIATHETIC ,,	II.
	2. TUBERCULAR ,,	153	12	9	1	4	3	29	5	4	17	22	2	21	14	10	5	2	...	...	2. TUBERCULAR ,,	
III.	1. DISEASES OF NERVOUS SYSTEM	172	45	12	4	1	1	63	4	1	1	6	12	22	16	20	19	7	1	...	1. DISEASES OF NERVOUS SYSTEM	III.
	2. ,, ORGANS OF CIRCULATION	68	...	...	...	...	...	...	2	2	6	3	1	10	11	17	15	1	...	...	2. ,, ORGANS OF CIRCULATION	
	3. ,, RESPIRATORY ORGANS	173	31	13	7	3	3	57	1	...	...	...	4	8	23	26	34	19	1	...	3. ,, RESPIRATORY ORGANS	
	4. ,, DIGESTIVE ORGANS	37	1	1	1	1	2	6	...	1	...	1	3	3	7	11	4	1	...	...	4. ,, DIGESTIVE ORGANS	
	5. ,, URINARY ORGANS	17	...	...	...	...	...	...	...	...	...	...	...	2	3	4	7	1	...	...	5. ,, URINARY ORGANS	
	6. ,, ORGANS OF GENERATION	4	...	...	...	...	...	...	...	...	...	...	1	2	1	...	...	...	...	...	6. ,, ORGANS OF GENERATION	
	7. ,, ORGANS OF LOCOMOTION	3	...	...	...	...	...	...	...	...	1	...	...	1	...	1	...	...	...	...	7. ,, ORGANS OF LOCOMOTION	
	8. ,, INTEGUMENTARY SYSTEM	7	1	...	...	...	...	1	...	...	...	...	1	...	2	...	3	...	...	...	8. ,, INTEGUMENTARY SYSTEM	
IV.	1. DEVELOPMENTAL DISEASES OF CHILDREN	40	30	9	1	...	...	40	...	...	...	...	...	...	...	...	...	...	...	...	1. DEVELOPMENTAL DISEASES OF CHILDREN	IV.
	2. ,, ,, ADULTS	5	...	...	...	...	...	...	...	...	...	...	...	2	3	...	...	...	...	...	2. ,, ,, ADULTS	
	3. ,, ,, OLD PEOPLE	64	...	...	...	...	...	...	...	...	...	...	...	...	...	2	16	33	12	1	3. ,, ,, OLD PEOPLE	
	4. DISEASES OF NUTRITION	72	53	5	2	1	...	61	...	...	...	...	1	1	2	3	3	1	...	...	4. DISEASES OF NUTRITION	
V.	1. ACCIDENT OF NEGLIGENCE	8	...	...	1	1	...	2	2	...	...	...	1	2	...	...	1	...	...	...	1. ACCIDENT OF NEGLIGENCE	V.
	3. HOMICIDE	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3 HOMICIDE	
	4. SUICIDE	3	...	...	...	...	...	...	...	...	...	...	...	2	1	...	...	...	...	...	4. SUICIDE	
	SUDDEN DEATHS, CAUSE UNASCERTAINED	24	8	...	1	...	...	9	...	...	...	...	1	4	5	3	2	...	...	...	SUDDEN DEATHS, CAUSE UNASCERTAINED	
	CAUSES NOT SPECIFIED, OR ILL DEFINED	6	2	...	...	...	...	2	...	...	...	1	...	...	1	...	1	1	...	...	CAUSES NOT SPECIFIED, OR ILL DEFINED	
	Order 1.																				Order 1.	
I.	Smallpox	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Smallpox	I.
	Measles	26	9	7	1	8	1	26	...	...	...	...	...	...	...	...	...	...	...	...	Measles	
	Scarlet Fever	11	...	4	2	...	3	9	2	...	...	...	...	...	...	...	...	...	...	...	Scarlet Fever	
	Diphtheria	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Diphtheria	
	Croup	2	2	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	Croup	
	Whooping Cough	25	12	9	2	1	1	25	...	...	...	...	...	...	...	...	...	...	...	...	Whooping Cough	
	Fever { Typhus	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	Fever { Typhus	
	Fever { Typhoid or Enteric	12	...	...	...	...	...	...	1	...	2	1	2	...	1	3	1	1	...	...	Fever { Typhoid or Enteric	
	Fever { Continued	6	...	...	...	...	...	...	3	...	...	1	1	1	...	...	...	...	...	...	Fever { Continued	
	Erysipelas	7	1	...	...	...	...	1	...	...	...	...	...	...	2	1	1	2	...	...	Erysipelas	
	Puerperal Fever (Metria)	4	...	...	...	...	...	...	...	...	...	1	2	1	...	...	...	...	...	...	Puerperal Fever (Motria)	
	Influenza	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Influenza	
	Dysentery	5	...	...	1	...	...	1	...	...	1	1	1	...	1	...	...	...	...	...	Dysentery	
	Diarrhœa	49	38	4	2	1	...	45	1	...	...	...	...	...	...	1	...	2	...	...	Diarrhœa	
	Cholera	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Cholera	
	Rheumatism	3	...	1	...	...	...	1	1	...	...	...	...	...	...	...	1	...	...	...	Rheumatism	
	Other Zymotic Diseases	2	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	*Other Zymotic Diseases*	
	Order 2.																				Order 2.	
	Syphilis	5	4	...	...	...	...	4	...	...	...	...	...	...	...	1	...	...	...	...	Syphilis	
	Stricture of Urethra	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	1	1	...	Stricture of Urethra	
	Hydrophobia	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	Hydrophobia	
	Order 3.																				Order 3.	
	Alcoholism	4	...	...	...	...	...	...	...	...	...	...	...	1	2	1	...	...	...	...	Alcoholism	
	Order 1.																				Order 1.	
II.	Gout	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Gout	II.
	Dropsy	4	...	...	...	...	...	...	...	...	...	...	...	...	...	3	1	...	...	...	Dropsy	
	Cancer	22	...	...	...	...	...	...	...	...	...	...	2	6	6	5	3	...	...	...	Cancer	
	Mortification	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	3	...	...	Mortification	
	Order 2.																				Order 2	
	Scorfula	34	5	6	1	3	2	17	1	1	2	1	1	2	2	3	3	1	...	...	Scrofula	
	Tabes Mesenterica	12	7	2	...	...	1	10	1	1	...	...	...	...	...	...	...	...	...	...	Tabes Mesentrica	
	Phthisis	105	...	...	...	...	...	...	3	2	15	21	23	19	12	7	2	1	...	...	Phthisis	
	Hydrocephalus	2	...	1	...	1	...	2	...	...	...	...	...	...	...	...	...	...	...	...	Hydrocephalus	
	Order 1.																				Order 1.	
III.	Cephalitis	3	2	1	1	...	...	4	2	...	...	...	1	...	...	1	...	...	...	...	Cephalitis	III.
	Apoplexy	32	...	...	...	...	...	...	...	...	1	...	...	2	6	11	10	2	...	...	Apoplexy	
	Paralysis	40	...	...	...	...	...	...	...	...	...	...	3	15	7	3	8	4	...	...	Paralysis	
	Insanity	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	Insanity	
	Epilepsy	17	...	...	...	...	...	...	1	1	...	...	3	7	3	2	...	...	...	...	Epilepsy	
	Convulsions	49	41	7	1	...	...	49	...	...	...	...	...	...	...	...	...	...	...	...	Convulsions	
	Brain Disease, &c.	25	2	4	2	1	1	10	1	...	...	2	1	2	1	5	1	1	1	...	*Brain Diseasas &c.*	
	Order 2.																				Order 2.	
	Pericarditis	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	Pericarditis	
	Aneurism	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Aneurism	
	Heart Disease, &c.	67	...	...	...	...	...	...	2	1	6	3	1	10	11	17	15	1	...	...	*Heart Disease, &c.*	
	Order 3.																				Order 3.	
	Bronchitis	115	16	7	5	1	...	29	...	...	...	...	1	4	18	19	28	15	1	...	Bronchitis	
	Pleurisy	4	...	...	...	...	...	...	1	...	...	...	...	1	...	1	1	...	...	...	Pleurisy	
	Pneumonia	46	15	6	2	2	3	28	...	...	...	...	3	2	4	4	3	2	...	...	Pneumonia	
	Asthma	7	...	...	...	...	...	...	...	...	...	...	...	...	1	2	2	2	...	...	Asthma	
	Lung Disease, &c.	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	*Lung Disease, &c.*	
	Order 4.																				Order 4.	
	Gastritis	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	Gastritis	
	Enteritis	3	...	...	1	...	1	2	...	...	...	...	...	1	...	...	1	...	...	...	Enteritis	
	Peritonitis	4	...	...	...	1	...	1	...	...	...	...	1	1	...	1	1	...	...	...	Peritonitis	
	Ulceration of Intestines	4	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	Ulceration of Intestines	
	Intussuception	2	...	...	...	...	...	...	...	...	...	...	...	...	...	1	3	1	...	...	Intussuception	
	Stomach Disease, &c.	7	...	1	...	...	...	1	...	1	...	...	...	1	2	2	...	...	...	...	*Stomach Disease, &c.*	
	Hepatitis	6	...	...	...	...	1	1	...	...	...	...	...	...	2	1	1	1	...	...	Hepatitis	
	Jaundice	6	1	...	...	...	...	1	...	...	...	...	...	...	1	3	...	...	...	...	Jaundice	
	Liver Disesec, &c.	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*Liver Disease, &c.*	
	Order 5.																				Order 5.	
	Bright's Disease (Nephria)	7	...	...	...	...	...	...	...	...	...	...	...	1	2	3	1	...	...	...	Bright's Disease (Nephria)	
	Diabetes	3	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1	...	...	Diabetes	
	Cystitis	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	...	...	Cystitis	
	Kidney Disease, &c.	4	...	...	...	...	...	...	...	...	...	...	...	1	...	1	2	...	...	...	*Kidney Disease, &c.*	
	Order 6.																				Order 6.	
	Ovarian Dropsy	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	Ovarian Dropsy	
	Uterus Disease, &c.	3	...	...	...	...	...	...	...	...	...	...	...	1	2	...	...	...	...	...	*Uterus Disease, &c.*	
	Order 7.																				Order 7.	
	Synovitis	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	Synovitis	
	Joint Disease, &c.	2	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	*Joint Disease, &c.*	
	Order 8.																				Order 8.	
	Phlegmon	2	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	Phlegmon	
	Ulcer	4	...	...	...	...	...	...	...	...	...	...	...	...	1	...	3	...	...	...	Ulcer	
	Skin Disease, &c.	1	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	*Skin Disease, &c.*	
	Order 1.																				Order 1.	
IV.	Premature Birth	10	10	...	...	...	...	10	...	...	...	...	...	...	...	...	...	...	...	...	Premature Birth	IV.
	Cyanosis	2	2	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	Cyanosis	
	Spina Bifida	4	4	...	...	...	...	4	...	...	...	...	...	...	...	...	...	...	...	...	Spina Bifida	
	Other Malformations	2	1	...	1	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	Other Malformations	
	Teething	22	13	9	...	...	...	22	...	...	...	...	...	...	...	...	...	...	...	...	Teething	
	Order 2.																				Order 2.	
	Childbirth	5	...	...	...	...	...	...	...	...	...	...	...	2	3	...	...	...	...	...	Childbirth	
	Order 3.																				Order 3.	
	Old Age	64	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	16	33	12	1	Old Age	
	Order 4.																				Order 4.	
	Atrophy and Debility	72	53	6	2	1	...	61	...	...	...	...	1	1	2	3	3	1	...	...	Atrophy and Debility	
	Order 1. (ACCIDENT OR NEGLIGENCE.)																				Order 1. (ACCIDENT OR NEGLIGENCE.)	
V.	Run over in the Street	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	Run over in Street	V.
	Drowning	3	...	...	1	...	...	1	1	...	...	...	...	1	...	...	...	...	...	...	Drowning	
	Burns and Scalds	2	...	...	...	1	...	1	...	...	...	...	1	...	...	...	...	...	...	...	Burns and Scalds	
	Fall	2	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	Fall	
	Order 4. (SUICIDE.)																				Order 4. (SUICIDE.)	
	Drowning	0	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	Drowning	
	Hanging	2	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	Hanging	
	Cut Throat	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Cut Throat	
	Sudden Deaths (cause unascertained)	24	8	...	1	...	...	9	...	...	...	...	1	4	5	3	2	...	...	...	Sudden Deaths (cause unascertained	
	Causes not specified or ill-defined	6	2	...	...	...	...	2	...	...	...	1	...	...	1	...	1	1	...	...	Causes not specified or ill-defined	

*Order 2 comprising Violent Deaths in Battle, and Order 5, Execution are ommitted as inapplicable to Macclesfield.


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